REMARKS

Reconsideration of the outstanding Office Action is respectfully solicited.

Claim 16 has been amended to incorporate the recitations of Claim 19; claims 19-21 were canceled.

Applicants respectfully traverse the rejection, under 35 U.S.C. 102, over the Jacobson et al. patents, of claims 10, 12, 13, 15, 16, 18, 19 and 21 over either Jacobson et al [3426684 or 3403625].

The U.S. PTO reasons for asserting that rejection appear at page 2 of the April 3 Office Action,

> Both patents to Jacobson disclose an...additive can comprise about 3% of the propellant charge (col.3 and 4)

Applicants can find no support for that reason in column 3 or column 4 of Jacobson 3426684. U.S. 3403625, at column 4 line 30, recites

> "Optimum results were obtained **utilizing an additive layer** 44 that **constituted about 3 percent by weight of the propellant charge**."

That is not what applicants claim. Accordingly, neither Jacobson patent anticipates applicants' claims. Cf. MPEP Section 2131, as discussed below. The difference between applicants' claims and the disclosure of Jacobson is that Jacobson refers to propellant charge. Applicants' claims recite

> "shaped ammunition part contains 2 to 15% of one or more erosion-reducing agent(s) [Claim 1]. "

Applicants' claims refer to "the combustible shaped ammunition part" [Claims 10 and 16]; or propellant case or propellant charge container [Claims 13-16, and claims dependent on

Claim 16 including claims 17-18].

Applicants do rely on MPEP policy to traverse the rejection for anticipation. MPEP Section 2131 is a synthesis of the case law precedent on the requisites of the disclosure of a reference, necessary to constitute an anticipatory reference: that section states that each and every element of the claim must be found in a unitary reference. [Also please see the cases In re Arkley [455F2d 586, 172 USPQ 524 (CCPA 1972); In re Samour, 571 F2d 559, 197 USPQ 1 (CCPA 1978) and In re Marshall 578 F.2d 301, 198 USPQ 344 (CCPA 1978). – relating to the evidentiary information contained in a reference applied under 35 U.S.C. 102---stand for the proposition that (1) the written description of a unitary reference must provide 'written description' of the claimed compound and (2) **the evidence must establish** that contemporaneous with the publication of the compound a person in the relevant art would be enabled to make, to be in possession of, the information provided by the written description. A naming of a compound does not necessarily satisfy the description requirement(s) of case precedent delineating the disclosure requirements of an anticipatory reference. In In re Wiggins [488 F.2d 538, 179 USPQ 421, 424-425 (CCPA1973), the authors of a reference named specific compounds claimed but indicated that it was impossible for the authors to make the compounds claimed in the application. Reviewing those facts concerning the express description in the reference, the Court found the naming of compounds in the reference to be merely speculation, rather than written description that placed the claimed compounds within the possession of the public.

The difference between applicants' claims and the disclosure of Jacobson is that Jacobson refers to propellant charge while applicants' claims refer to "the combustible shaped ammunition part" [Claims 10 and 16]; propellant case or propellant charge container [Claims 13-16, and claims dependent on Claim 16 including claims 17-21]. Accordingly, the

description relied upon by the U.S. PTO **does not establish** a prima facie case **of anticipation.**

Applicants traverse the rejections for obviousness under Section 103(a) of the Patent Statute. Since clearly there is a difference between the Jacobson patents and the instantly rejected claims, for reasons set forth above, the next determination under Section 103 relates to the level of skill in the art.

In fact, there is no description in any of the references that the content of erosion-reducing admixtures should be between 2 and 15% of the material in the combustible case. On page 4 of the Office Action, the U.S. PTO states that the use of 3 weight % relative to the propellant charge is already suggested in Jacobson. A person of ordinary skill would not logically arrive at the claims of the instant application, as that person would not equate the whole propellant charge to the container or case.

Logical extrapolation of the U.S. PTO reasoning would mean: If the propellant charge of a large-caliber cartridge has a weight of, for example, 8 kg, then Jacobson proposes adding approximately 240g of WO_3 to the propellant charge. If the combustible case of such a cartridge weighs 600g, for example, it appears that the U.S. PTO believes that, it would have suggested itself to the average person skilled in the art to add 18g of an erosion-reducing admixture to the case instead of adding 240g to the propellant charge.

Apart from the fact that such a conclusion does not follow from Jacobson, it is not logical to conclude that 18g of the admixture in the combustible case has approximately the same effect as 240g of an admixture in the propellant charge.

Applicants believe that the U.S. PTO overlooks that erosion-reducing admixtures in propellant charge cases cause a much higher reduction of the erosion in the respective weapon barrel than admixtures added to the propellant charge because the combustible case

is located directly on the internal wall of the weapon barrel.

On the other hand, applicants German counsel has advised that experiments have been performed that show that the erosion-reducing admixtures essentially affect the mechanical stability of the combustible case. That is to say, the mechanical stability of the propellant charge case drops with an increase in the share of erosion-reducing material.

The share of erosion-reducing admixture to be inserted into the propellant charge case, ascertained to be between 2 and 15 weight %, represents a good compromise between the requirements of using the maximum amount of admixture for achieving a good reduction in the barrel erosion while, at the same time, preventing a considerable worsening of the mechanical stability of the combustible case.

The applied references do not describe or suggest corresponding listing of percentages of the erosion-reducing share to be incorporated into an ammunition blank.

Watson-Adams (4,378,256) and Moser et al. (4,724,172) references do not make up for the deficiencies of the Jacobson patents. The secondary references are irrelevant as they relate to aluminum coatings and the latter relates to aluminum containing coatings. As is clearly expressed in the cited references, the erosion-reducing effect is to be achieved in that the admixtures result in a layer of oxides, carbides and/or nitrides of the corresponding metal on the internal surface of the weapon barrel. This protective layer is designed to prevent an erosion of the weapon barrel.

Thus the references disclosures function in a way that is totally different from that of the claimed subject matter. In contrast, the erosion-reducing admixtures for the subject matter of the instant application **do not** result in a protective layer when incorporated into the combustible case. Rather, the erosion-reducing effect of the admixtures is achieved in that the hydrogen generated during the combustion of the case and powder, which is above all

responsible for creating the erosion, is eliminated through a reduction of the admixtures that function as oxidizing agents and by forming H_2O. In the process, elemental metal (e.g. tungsten) in the most refined form is created while using energy, meaning it results in a reduction in the temperature. However, this material does not form a protective layer. Please see page 8 of the application which is illustrative:

> The surprisingly good erosion-reducing effect of these oxides is presumably due to their ablative effect, which leads to a cooling of the inside wall of the weapon tube from which the respective ammunition is fired. The ablative effect of the oxides is explained through the high negative formation heat ΔH of these oxides and the relatively low boiling points. The weapon tube is cooled by the enthalpy of vaporization of these oxides, which are located practically directly against the inside wall of the weapon tube because of their intercalation into the wall regions of the shaped ammunition part, so that the erosion is lowered noticeably.

The use of polyoxymethylene (POM) exhibits a slightly different behavior. As a result of the high temperatures, this high molecular substance is decomposed into the building blocks CH_2 –O. The decomposition enthalpy of this reaction, however, causes an ablative cooling of the inside wall of the weapon barrel. Another effect is achieved during the reaction of O-CH2 radials with hydrogen, which bonds with hydrogen and thus also prevents erosion. Thus, a protective layer does not form even when using POM as erosion-reducing admixture.

Reconsideration and an early allowance are respectfully solicited.

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Marina V. Schneller
Registration No. 26,032
VENABLE LLP
P.O. Box 34385
Washington, D.C. 20043-9998
Telephone: (202) 344-4000
Fax: (202) 344-8300